



Tel 1-800 762 1586  
www.sterilizers.com

# Compact Autoclaves

| 33 | 43 | 63 | Litres



Ideal for most laboratory applications including sterilization of Liquids (Media), Discard, Glassware, and Laboratory Instruments.

## Standard features

- 5.7" Full Colour Touchscreen
- PLC Controller
- Internal Base Shelf
- Data Archive
- Timed (Delayed) Start
- Electro-Polished Chamber
- Validation Port
- Media Holdwarm
- Cooling Lock
- Over-Temperature Protection
- Safety Valve Test Program
- Pressure Gauge
- 5 Password Levels
- Multi Program
- Pulsed Heat Drying (Autofill Version)
- Timed/Pulsed Free Steaming

The **Classic** Version requires manual water-fill; during the cycle condensate leaves the vessel via a silicone tube that can be connected to a heat-resistant bottle.

The **Autofill** Version has an integral reservoir. Once filled, this provides water for up to 15 cycles, and also acts as a collection vessel for condensate and the water that is automatically returned from the chamber at the end of each cycle.

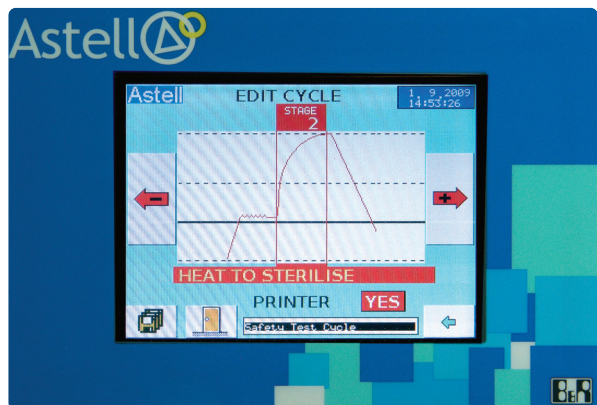
# Compact Autoclaves

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## Technical details

Reference	Classic/Autofill	Loading	Volume Litres	Power Supply	Chamber dia x depth mm	Overall Dims wxhxd
AMB420BT	Classic	Front	33	1Ø-13A	350 x 360	520 x 540 x 780
AMB430BT	Classic	Front	43	1Ø-13A	350 x 460	520 x 540 x 780
AMB440BT	Classic	Front	63	1Ø-13A	350 x 660	520 x 540 x 980
AMA440BT	Classic	Top	63	1Ø-13A	350 x 640	530 x 1040 x 700
AMB220BT	AutoFill	Front	33	1Ø-13A	350 x 360	520 x 540 x 780
AMB230BT	AutoFill	Front	43	1Ø-13A	350 x 460	520 x 540 x 780
AMB240BT	AutoFill	Front	63	1Ø-13A	350 x 660	520 x 540 x 980
AMA240BT	AutoFill	Top	63	1Ø-13A	350 x 640	530 x 1040 x 700

## The new Logi control system



The New Logi control systems are an advance in sterilization control technology, bringing together years of unrivalled experience, to produce a user friendly, fully automatic control system, to meet and exceed the expectations of the most demanding laboratories and centres of sterilization.

The controller consists of a wipe clean touch screen measuring 122mm x 94mm and is based on an industrial PLC controller, combined with a number of analogue and digital input/output modules. The controller software has been developed by Astell for the precision control of autoclaves.

- Full Colour Touch Screen
- Icon Driven
- Password Protected Security System
- Multiple Access Levels
- Simple Cycle Selection
- Optional RS232 Interface / Port allowing connection to other peripheral devices such as a printer
- Operator Interface
- Enables continual monitoring
- Individual analogue channels are displayed
- Temperature / Pressure etc
- Continuous Data Archiving
- Self-Help Tutorial

## Bottle Capacity

Based on Duran type bottle

	AMB420T AMB220T	AMB430T AMB230T	AMB440T AMB240T	AMA440T AMA240T
500ml	10	14	21	24
1000ml	8	11	15	14
2000ml	2	3	4	6*

\* AMA240NT/AMA440NT will hold 8 x 2000 ml bottles if baskets are not used

## Additional options available

(see Options brochure for further details)

Reference	Description
AAR130	Integral Data Printer
AAR500	Sterilization Datalogger
AAP007	Assisted Air Cooling
AAN014	Load Sensed Process Timing
AAR120	RS232 Interface
AAR122	Ethernet Interface
AAN346	Discard Container (for benchtop units)
AAN340	Half Depth S/Steel Basket
AAN342	Half Depth Morrison Container
AAN074	Load Support Plate
AAN520	Five Position Shelf Rack (AMB220/420)
AAN522	Spare Shelf for AAN520
AAN530	Five Position Shelf Rack (AMB230/430)
AAN532	Spare Shelf for AAN530
AAN040	Five Position Shelf Rack (AMB240/440)
AAN043	Spare Shelf for AAN040
AAN308	Condensate Bottle – Classic Models
IQ/OQ	Document Package

## Standards Compliance

ISO9001: 2008

ISO 17025:2005 (UKAS)

ISO13485: 2003

Pressure Equipment Directive (EN/97/23/EC)

Medical Devices Directive (93/42/EC & 2007/47/EC)

IEC 61010

# Options & Accessories

## For the Astell Autoclave Range

Reference	Description	Compact	Front Loading	Top Loading	Duaclave	Square Section
LOGGING OPTIONS						
AAR130	Integral data Printer	■	■	■	■	■
AAR500	Sterilization Datalogger	■	■	■	■	■
AAR120	RS232 Interface	■	■	■	■	■
AAR122	Ethernet Interface	■	■	■	■	■
Chart Recorders	Various (Independent) Chart Recorders	■	■	■	■	■
LIQUID CYCLE OPTIONS						
AAP006 <sup>1</sup> AAP007 <sup>2</sup>	Assisted Air Cooling (Non Vacuum Units)	■ <sup>2</sup>	■ <sup>2</sup>	■ <sup>1</sup>	■ <sup>1</sup>	■ <sup>1</sup>
AAN014	Load Sensed Process Timing	■	■	■	■	■
ADA100	Deluge Cooling		■			■
AAP100 <sup>1</sup> AAP080 <sup>2</sup>	Advanced Water Cooling		■ <sup>1</sup>	■ <sup>2</sup>	■ <sup>1</sup>	Standard
AAP102	Internal Convection Fan Cooling		■			■
AVC004	Air Ballast		■	■		■
AAP018	Autodrain (Non Vacuum Units)		■	■	■	n/a
DRY CYCLE OPTIONS						
AVC001	Vacuum System (Advanced)		■			■
AVC002	Vacuum System (Simple) N.B. Only available on Front Loading: 120L, 153L, & Top Loading: 120L, 135L		■	■		
AJP100 <sup>1</sup> AAQ302 <sup>2</sup>	Heated Jacket (Vacuum Units)		■ <sup>1</sup>	■ <sup>1</sup>		■ <sup>2</sup>
AJP150	External Vessel Warming		■	■		
OPERATIONAL ENHANCEMENTS						
AAP019	Autofill		■	■	■	n/a
AAW001/AAW002	Water Softener (80L per min / 50L per min)		■	■	■	■
SPL285	Blow Down Vessel (Vacuum Units)		■	■		■
AVC005	Cat III Compliance	■	■	■	■	■
AVQ007	SPF Seal (Double Door Units)		■			■
AAN009	Pulsar Freesteaming (Non Vacuum Units)		■	■	■	
AAN420	Exhaust Heat Exchange System (N.B. Standard on Vac)		■	■	■	Standard
IQ/OQ	IQ/OQ Document Package	■	■	■	■	■
AAQ503	Integral Air Compressor (Vacuum & Square Section Units)		■	■		■
AAN074/AAN002	Internal Load Support Plate (Compact Vertical 63L / Top Loading Unit Units)	■		■		
AAN316 AAN318 AAQ801	Additional Shelf Kit (According to model)		■			■
AAN520 AAN530 AAN040	Five Position Shelf Pack (Benchtop Units - According to model)	■				
AAN522 AAN532 AAN043	Spare Shelves for Shelf Pack (Benchtop Units - According to model)	■				
AAN036/AAN042	Stainless Steel Baskets 400dia x 400d / 400dia x 220d (mm)			■		
AAN056/AAN058	Morrison Discard Containers, 390dia x 500h / 390 x 355d (mm)			■		
AAN340	Half Depth Basket, Top-Loading Compact, 310dia x 270h (mm)	■				
AAN342	Half Depth Morrison Container, Top-Loading Compact, 310dia x 270h (mm)	■				
AAN080	Container Tray, 279 x 279 x 127mm		■		■	■
AAN300	Morrison Discard Container 290 x 330 x 280mm		■			■
AAQ300	Discard Container 300 x 300 x 300mm				■	■
AAN346	Discard Container (Benchtop Units)	■				
AAN308	Condensate Bottle (Compact Classic Units)	■				
AAQ600/AAQ602	Loading System (For Single Door/Double Door models)					■
AAN150	Lifting Hoist			■		

## Logging options

*For saving and/or monitoring autoclave cycle data.*

### Integral Data Printer

The printer provides a permanent and traceable record of:

'Time' 'Temperature' 'Pressure' 'Batch No.' 'Cycle Name'. There is also provision for 'Operator signature' the printer also provides reports of cycle settings and servicing information.

### RS232 Interface

This allows cycle progress to be monitored on an external computer equipped with suitable software.

### Ethernet Interface

Via VNC Viewer. Allows visual display of autoclave touch screen.

### Recorder

This can be either a continuous paper trace with one or more pens recording temperature/pressure, or alternatively it can be video graphic, displaying cycle detail on a screen and saving them to memory for recall at a later date.

## Liquid cycle options

*Serious consideration should be given to these options when processing liquids, particularly when the load is likely to contain sealed bottles or plastic containers.*

### Load Sensed Process Timing

Load Sensed Process Timing allows the sterilization cycle to be controlled via the temperature achieved in the centre of the load. The operation of load sensed process timing is controlled via the 'Logi' programmer. A 'wandering' probe, situated within the chamber is inserted into the load, or load simulator, and initiates the sterilization period once the probe reaches the programmed threshold temperature. A selectable 'Profiled Overshoot Boost' speeds up the cycle and minimises over-processing of media loads. This same probe can be used during cooling as confirmation to the 'Logi' programmer that the load has reached a safe temperature for opening the door.

### Assisted Air Cooling

A powerful fan-assisted cooling system which greatly reduces the time taken to cool-down a liquid load. The operation of the Assisted Air Cooling system is controlled via the 'Logi' programmer and is available on all models.

### Advanced water cooling

Water is circulated through cooling coils in contact with the chamber, resulting in a rapid decrease in the temperature of liquid loads – advanced water cooling offers substantial time saving and is ideal for any department where a quick turnaround of liquid loads is required.

*Note: Square Section models are generally supplied with Jacket Water Cooling as standard.*

### Internal Convection Fan Cooling

Fans are sited within the chamber itself. These create turbulence reducing cooling time greatly. When incorporated with an external cooling system such as advanced water cooling, internal fan cooling is one of the most efficient ways of cooling the chamber.

### Deluge Cooling

This system also provides internal deluge heating. By passing sterile recirculated water over the load heat up and cooling times are reduced ensuring an overall reduction in cycle times. ONLY SUITABLE FOR USE WITH FLUIDS IN SEALED CONTAINERS.

### Integral Air Ballast

For autoclaves with a vacuum pump and processing fluids. Particularly useful when processing liquids in sealed containers as it provides a controlled reduction in chamber pressure during the cooling phase, effectively preventing the 'boiling over' of bottled fluids or the glass breakage that is frequently associated with rapid cooling systems without air ballast.

### External Air Ballast

For autoclaves without a vacuum pump and processing fluids. Particularly useful when processing liquids in sealed containers as it provides a controlled reduction in chamber pressure during the cooling phase, effectively preventing the 'boiling over' of bottled fluids or the glass breakage that is frequently associated with rapid cooling systems without air ballast. If compressed air is not available on site a compressor and suitable air receiver must be ordered with this option.

### Non Re-Circulation System (Compact Models)

Selectable for Liquid and Discard loads. Wastewater is fed through a silicone tube to an external container or drain (instead of to the integral reservoir/condensate bottle). This system is useful in situations where blockage or contamination (e.g. by escaped media) is anticipated.

### Auto-Drain

This feature can be selected on any cycle and will substantially decrease the time required to cool the chamber to a temperature where the door can be safely opened, especially when used in conjunction with Water or Air Cooling. At a pre-selected pressure during the cooling phase of the cycle, the water reservoir remaining in the chamber is evacuated to the drain. Auto-Fill must be ordered in conjunction with this option. As the discharge water will be approx. 100°C we would highly recommend that the - Exhaust Heat Exchange System is also ordered when specifying the Auto-drain option.

## Dry cycle options

*When processing dry or semi dry loads such as porous loads, textiles, instruments, plastic discard, or instruments/equipment of a complex nature where air removal may be difficult and/or where the load needs to be removed dry the following options should be considered.*

### Vacuum Systems

The presence of air in the load may inhibit or even invalidate the sterilization process. The addition of a vacuum pump will enhance the air removal by removing entrained or trapped air from the load, and therefore allowing steam to access every part of the load and ensuring the success of the sterilization process. The vacuum system can also be used in the post sterilization stage, and when used in conjunction with a heated jacket or external vessel heating, will ensure dry loads.

*Note: Astell offer two levels of vacuum: Simple and Advanced: Both offer pre vacuum air removal and post vacuum drying, with the 'Advanced' system offering a more intense pre-vacuum which makes it suitable for more demanding applications.*

### External Vessel Heating

Provides improved temperature distribution during sterilization. Drying efficiency is also enhanced.

### Full Heated Jacket

A stainless steel steam jacket around the chamber providing improved temperature distribution during sterilization. Drying efficiency is also enhanced with this option and it is therefore essential this option is specified for autoclave where fabrics/textiles/porous loads and wrapped instruments are being sterilized on a regular basis.

### Pulsar Free Steaming

This optional feature ensures adequate air removal from 'difficult' loads. The continuous opening and closing of the vent valve greatly increases turbulence at the Freesteaming stage. Pulsar freesteaming is available for all non-vacuum models.



If in doubt contact Astell for more details on +44(0)208 309 2000

## Operational enhancements

*Depending on the application and site facilities the following enhancements may be included to optimise the operation of the autoclave.*

### Auto-fill (Automatic Water Fill)

(Electrically Heated Models Only). The Auto-fill option automatically maintains adequate water level within the chamber. This is a fully automatic system comprising an internal reservoir tank which accepts mains cold water at 0.2 – 6.0 Bar pressure. The water inlet is controlled by level switching and includes an air gap to comply with water regulations. The unit is readily connected to the water supply via a 1.5m flexible hose (supplied).

### Exhaust Heat Exchange System

An option to significantly reduce the temperature of the exhaust/waste in situations where heat resistant drains are not present. N.B. This option requires a mains water supply.

### Option for CAT III Compliance (Vacuum Models)

For models with a vacuum pump or external steam heating. Steam enters the chamber through the drain which is sealed during the cycle ensuring all condensate is sterilized. A bacterial retentive filter fitted onto the exhaust ensures nothing leaves the chamber without being sterilized. The positioning of the filter ensures that it is sterilized during every cycle.

### Option for CAT III Compliance (Non Vacuum Models)

For models without vacuum, or with heaters in the chamber, the bacterial retentive filter is fitted to the exhaust line and is sited to ensure that it is sterilized each cycle.

### Loading system

Consisting of External Trolley/s & Internal Truck/s. External Trolley: Mild steel, powder coated, with stainless steel runners to accept Internal Truck. Internal Truck, stainless steel: Fixed base shelf, plus fully adjustable upper shelf. The truck has rollers which run onto stainless steel rails which are fixed into the base of the autoclave chamber.

### SPF Seal

A bacteriological seal mounted on a special flange typically used to enable a double door unit to be installed between a sterile and non sterile area, but also suitable where a bacteriological barrier needs to be maintained between the front of the autoclaves and the maintenance area.

### Blow-Down Vessel

(REQUIRED if customer does not have the facility to accept Blow Down of up to 6bar) This option allows the operator to release, at high pressure, the contents of the Steam Generator into this specially designed tank. The regular action of blow-down (usually for no more than a few seconds) reduces the build up of dissolved solids, elongating the life span of the generator and its heaters. In the absence of a blow down vessel, adequate, safe provision should be made for blowing down the steam generator as part of a planned preventative maintenance schedule.

### Water Softeners

Strongly recommended for use in 'HARD WATER' areas to reduce the build up of limescale on heaters, pipework etc and particularly recommended for units with steam generators. This product requires salt. (Full details, including service requirements, available upon request).

### Integral Air Compressor

For use where External Air Ballast has been specified but compressed air is not available on site, or where air is required to operate any or all of the following: The control valves, the doors and or the door seals.

### IQ/OQ (Installation Qualification/Operational Qualification) Documentation Pack

Typically a requirement of pharmaceutical companies or those providing medical devices/products. The IQ/OQ provides documentary evidence that the autoclave complies to the customers requirements as ordered and performs correctly.

#### IQ Documentation contains:

- Details of calibration equipment
- Order Acknowledgement
- PED (Pressure Equipment Directive) Compliance
- Declaration of Conformity
- FAT (Factory Acceptance Test)
- Drawing Schedule
- ISO 9001:2000 Certification
- Pressure vessel specification
- Door safety checks

#### OQ Documentation contains:

- Chamber temperature distribution (by cycle)
- Automatic control test (by cycle)

Astell can also advise on PQ (Performance Qualification) requirements, but as this is very much product/load specific it must be considered a bespoke document and each one will be drawn up individually in co-operation with the client.

### Baskets, Containers, Shelves, Hoists

A selection of baskets, discard containers, shelves (solid and mesh), and lifting hoists can be supplied to suit most applications.

## Standards Compliance

ISO9001: 2008  
ISO13485: 2003

Pressure Equipment Directive (EN/97/23/EC)  
Medical Devices Directive (93/42/EC & 2007/47/EC)

ISO 17025:2005 (UKAS)  
IEC 61010